REMARKS

Claims 1-4 and 9-29 remain in the application.

The Examiner has pointed out problems with the form of the amendments presented in the response of May 17, 2001. The undersigned attorney admits the difficulty with conforming to the new regulations. It is believed that the amendments made at this time remove the prior ambiguity.

The Examiner has rejected Claims 1, 2, 5-9, 12-15, and 17-20 under 35 USC §102(e) as being anticipated by US Patent 5,770,098 to Araki et al. (hereinafter Araki). This rejection is traversed. Araki does not present any example using C_4F_6 with no carbon monoxide and hence does not anticipate C_4F_6 and no CO. Applicants respectuflly submit that Araki's experimental data using a fluorocarbon gas C_4F_8 with no carbond monoxide cannot be used to anticipate the claimed invention. An anticipation occurs when a single reference anticipates the invention. The statutory requirement for anticipation is that the "invention .. was described in a patent," (35 USC 102(e)), not that the elements of the claimed invention can be found in different parts of the printed patent. Araki at best presents an accidental anticipation of his invention for an etching recipe including C_4F_8 but no CO. Araki does not anticipate the invention for an etching recipe including C_4F_6 but no CO.

The Examiner's form of anticipatory rejection carried to a *reductio ad absurdum* means that a comprehensive technical encyclopedia would anticipate virtually any claimed invention since any claimed element of the invention can be found somewhere in the many volumes of the encyclopedia. The *reductio* for an unabridged dictionary is too absurd to pursue.

Therefore, for the Examiner to support a rejection over Araki, it must be a one-reference obviousness rejection under §103, and the Examiner must demonstrate that different parts of Araki can be combined in an obvious way to be read upon by the claim. Araki is not such a reference. Araki shows in one place an experimental recipe with no CO, and he shows in another place that he considers both C_4F_8 and C_4F_6 to be included in a same very broad class of

fluorocarbons extending from CF_4 to $C_{10}F_{22}$. Araki does not suggest substituting each of this very broad class of fluorocarbons for the C_4F_8 of his CO-free recipe, nor does he suggest the advantage for such a combination.

A reference must be read for all it teaches.

> It "is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *In re Wesslau*, 147 USPQ 391, 393 (CCPA, 1965).

while the Examiner may take the position that Araki suggests that C_4F_6 can be substituted for C_4F_8 in one type of a CO-containing recipe, Araki teaches against making this substitution when no CO is present. His most general descriptions of his invention in his summary at column 2, lines 29-32 and 41-45 present an extremely broad definition for his fluorocarbon gas but it additionally contains the restriction that the etching gas mixture contain CO. Further, Araki nowhere suggests repeating his experimental point of no CO with any of the other fluorocarbons than C_4F_8. Even Araki's claims and abstract require a significant CO content.

The Examiner has rejected Claims 10, 11, and 16 under 35 USC §103(a) as being obvious over Araki in view of the admitted prior art. This rejection is traversed.

First, these claims are dependent upon claims believed to be in allowable form.

Secondly, while it might be assumed *arguendo* that Applicants admit the desirability of a wide process window, such an admission does not constitute an enabling description of a specifically defined process window. It is not obvious to optimize the recipe of Araki to achieve the required 25% process window. The tens to hundreds of fluorocarbons suggested by Araki and the five inert gases suggested by Araki present too large a number of combinations to support an allegation of routine experimentation in finding the one combination and the one set of process conditions for that combination that achieve the required process window. Accordingly, this rejection should be removed as well.

The Examiner has provisionally rejected Claims 21 and 24-28 under 35 USC §101 as

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claiming the same invention as Claims 25 and 28-32 of co-pending application 09/405,869. This rejection is traversed. The two base claims differ both in the preambles and in the details of the claimed elements so that a same-type double-patenting rejection is improper. The attached terminal disclaimer should resolve any difficulty with obviousness-type doubling patenting.

The Examiner has provisionally rejected Claims 22-23 and 29 for obviousness-type double patenting over Claims 25 and 32 of Application 09/405,869. A terminal disclaimer is submitted relative to the cited application so this rejection should be removed.

The Examiner has indicated that Claims 3 and 4 would be allowable if rewritten to avoid rejected base claims. Claim 3 has been rewritten in independent form.

Entry of the amendments is respectfully requested under 35 CFR §1.116 as canceling claims and further conforming to a request of the Examiner not affecting the subject matter of the amended claim.

In view of the above amendments and remarks, reconsideration and allowance of all claims are respectfully requested. If the Examiner believes that a telephone interview would be helpful, he is invited to contact the undersigned attorney at the listed telephone number, which is on California time.

Respectfully submitted,

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Version with markings to show changes made

In the specification:

Paragraph at page 11, line 22 to page 12, line 4:

Two series of experiments were performed which measured oxide and nitride etch rates for blanket structures, that is, unpatterned oxide and nitride layers. The experiments used a combination of C_4F_6 and either Ar and Xe. The selectivity to nitride is plotted in FIG. 8 for the two diluent gases as a function of the diluent flows. The two diluents exhibit significantly different behavior. The nitride selectivity for Ar is highest at low Ar flows and decreases at higher argon flow. However, the cited C_4F_6 patent to Hung et al. demonstrates that in narrow geometries such as SAC structures, a higher argon flow is required to prevent etch stop. On the other hand, the data of FIG. 8 shows that nitride selectivity for Xe rises with increasing Xe flow. As a result, no etch stop and high nitride selectivity can both be attained with high flows of Xe. The data of FIG. 8 are derived from separately measured oxide and nitride losses. The oxide losses (oxide etch rate) for the two diluents do not significantly differ, both decreasing about 30% from 20sccm to 500sccm of the diluents. However, the nitride loss with Ar remains substantially constant from 100sccm to 500sccm while that with Xe drops by almost a factor of three between 20sccm and 500sccm.

Replace all claims with:

3. (Twice Amended) [The process of Claim 2] A process for etching an oxide layer in the presence of a nitride layer, comprising the steps of:

flowing into a plasma reaction chamber a gas mixture comprising a first amount of hexafluorobutadiene and a second amount of xenon and including substantially no carbon monoxide, wherein a ratio of said second amount to said first amount is at least one;

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applying a first level of RF power to a pedestal electrode supporting a substrate containing said oxide and nitride layers; and

exciting said gas mixture into a plasma to thereby selectively etch said oxide layer to said nitride layer;

wherein said oxide layer overlies said nitride layer and said ratio is at least ten, to thereby etch said oxide layer selectively to said nitride layer; and,

wherein said nitride layer comprises a nitride formed into a corner feature.

Please cancel Claims 5-11.